SERVICE DIVISION STAFF STRUCTURE

DATA PROCESSING AND TELECOMMUNICATIONS VENDORS

JULY 25, 1984

SERVICE DIVISION STAFF STRUCTURE

DATA PROCESSING AND TELECOMMUNICATIONS VENDORS

I INTRODUCTION

- The attached report was commissioned by G. Harris of AT&T Information Systems, office number C06, 99 Jefferson Road, Parsippany, New Jersey 07054.

- The information was obtained from:

    - Telephone interviews from the companies listed;

    - INPUT files on each company;

    - INPUT estimates whenever information was proprietary.

- The main area of estimation was in staff distribution. Two types of estimates were used:

    - Estimates by respondents (i.e., when data were given, it was assumed to be correct and reported as such);

    - Estimates by INPUT based on file sources.

- The INPUT estimates were based on the knowledge that the average staff salary and attributable overhead costs are 20% higher than the average operations staff and attributable overhead costs. Therefore, knowing the exact, or in some cases the approximate, headcount distribution, the direct expense ratio of staff to operations could be calculated (the exceptions are TRW and Wang).

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II EXECUTIVE SUMMARY

A. SERVICE ORGANIZATION

- The composition of the service organization from the standpoint of staff functions included or excluded is extremely variable and is tightly related to the personality of the company.

    - When the company is strongly centralized, the marketing and personnel functions are generally within the corporate staff and not in the customer services division (e.g., Wang, Xerox, Rolm).

    - When customer service is a small division, few staff functions are allowed and the customer services division is almost entirely operations (e.g., Centel, Northern Telecom, NEC); many telecommunications companies have this structure.

- Exhibit II-1 summarizes the findings on this point.

- The common definition of "operations" includes technical, developmental, and in-field support services and related functions. This also includes line management. Minor levels of administration, personnel, and planning functions are sometimes included, but usually not.

- The data systems function is included in staff functions in most major service organizations with the curious exception of TRW--where it is part of corporate's responsibility. The inclusion/exclusion of financial responsibility in "staff" is very variable with no clear pattern.

- Note, however, the close correlation of IBM and SORBUS who are leaders in their respective fields and have strong service management.

B. ORGANIZATION CHARTS

- Some companies feel that this data is proprietary and gave only outline descriptions; some feel the data can be released (in great detail) to the public; and others do not carry up-to-date charts and could not provide detail even though they were willing to do so.

- Each company description has a separate organization chart.

EXHIBIT II-1

STAFF FUNCTIONS (Included in Customer Service)	Centel	DEC	Hewlett-Packard	Honeywell	IBM	NEC	Northern Telecom	ROLM	SORBUS	TRW	Wang	Xerox
Data Systems	–	X	X	X	X	X	●	X	X	–	X	X
Financial Planning	–	●	●	X	X	●	●	X	X	X	X	X
Logistics	X	X	X	X	X	●	●	X	X	X	X	X
Personnel	*	X	●	●	X	*	*	*	X	X	*	–
Strategic Planning	X	●	X	X	X	●	●	–	X	X	X	X
Marketing	–	●	●	X	X	*	*	–	X	X	*	*

X = Yes, entirely; ● = Most in customer service; * = Most in corporate.

INPUT

C.   STAFF DISTRIBUTION

- Exhibit II-2 summarizes the data on staff and functions percentage distribution by headcount and by direct expense. Most company percentages are comparible with two categories of exceptions:

    - Companies providing data which appears to be grossly inaccurate (i.e., NEC, Wang);

    - Companies whose staff to operation direct expense ratios are decreasing with respect to headcount as opposed to increasing for most other companies (i.e., TRW, Wang).

- There is little that can be added to the above: perhaps it is correct that TRW staff earn less than the customer services operations management. It is also just possible that the NEC headcount numbers may be correct: small in-field operations and heavy staff. However, the comparison with other companies suggests otherwise.

EXHIBIT II-2

	PERCENTAGES	Centel	DEC	Hewlett-Packard	Honeywell	IBM	NEC	Northern Telecom	ROLM	SORBUS	TRW	Wang	Xerox
STAFF	Headcount	10	14	20	14	15	40	12	10	20	27	30	15
	Direct Expense	12	17	24	16	20	60	14	14	23	22	25	18
OPERATIONS	Headcount	90	86	80	86	85	60	88	90	80	73	70	85
	Direct Expense	88	83	76	84	80	40	86	86	77	78	75	82

Note: NEC data appears to be grossly inaccurate and Wang data seems unlikely.

Vendor: CENTEL	Date Prepared: 6/29/84

1. Services Organization

- "Staff" functions are essentially administrative, personnel and the correspondents of functions done outside the customer services division (e.g. marketing, which is essentially accomplished by corporate marketing with a small customer service marketing correspondent).

- "Operations" means all technical functions as well as in-field customer service.

2. Staff Functions

- Very limited functions, very small staff at the customer services division level.

☐ Data Systems   ☐ Financial Planning   ☒ Logistics

☒ Personnel – For   ☒ Strategic Planning   ☐ Marketing
  plant operations,
  time sheets, etc.

3. Other Non-CS Staff

- Personnel – essentially corporate except for day to day management.

- Financial Planning – done by a corporate regulatory department.

- Marketing – corporate – 90%, CS – 10%.

4. Geographic Deployment

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                    ┌──────────────────┐
                    │    President     │
                    │        of        │
                    │  Centel Division │
                    └────────┬─────────┘
                             │
                    ┌────────┴─────────┐
                    │      V.P.        │
                    │       of         │
                    │  Centel Division │
                    └────────┬─────────┘
                             │
                 ┌───────────┴────────────┐
        ┌────────┴────────┐      ┌─────────┴────────┐
        │    Customer     │      │      Plant       │
        │     Service     │      │    Operations    │
        │    Manager      │      │     Manager      │
        └────────┬────────┘      └─────────┬────────┘
                 │                         │
        ┌────────┴──────┐         ┌────────┴────────┐
        │    Systems    │         │     Systems     │
        │    Manager    │         │     Manager     │
        └───────┬───────┘         └─────────────────┘
                │
    ┌───────────┼───────────┐
┌───┴────┐  ┌───┴────┐  ┌───┴────┐
│ Group  │  │ Group  │  │ Group  │
│Supervisor│ │Supervisor│ │Supervisor│
└────────┘  └────────┘  └────────┘
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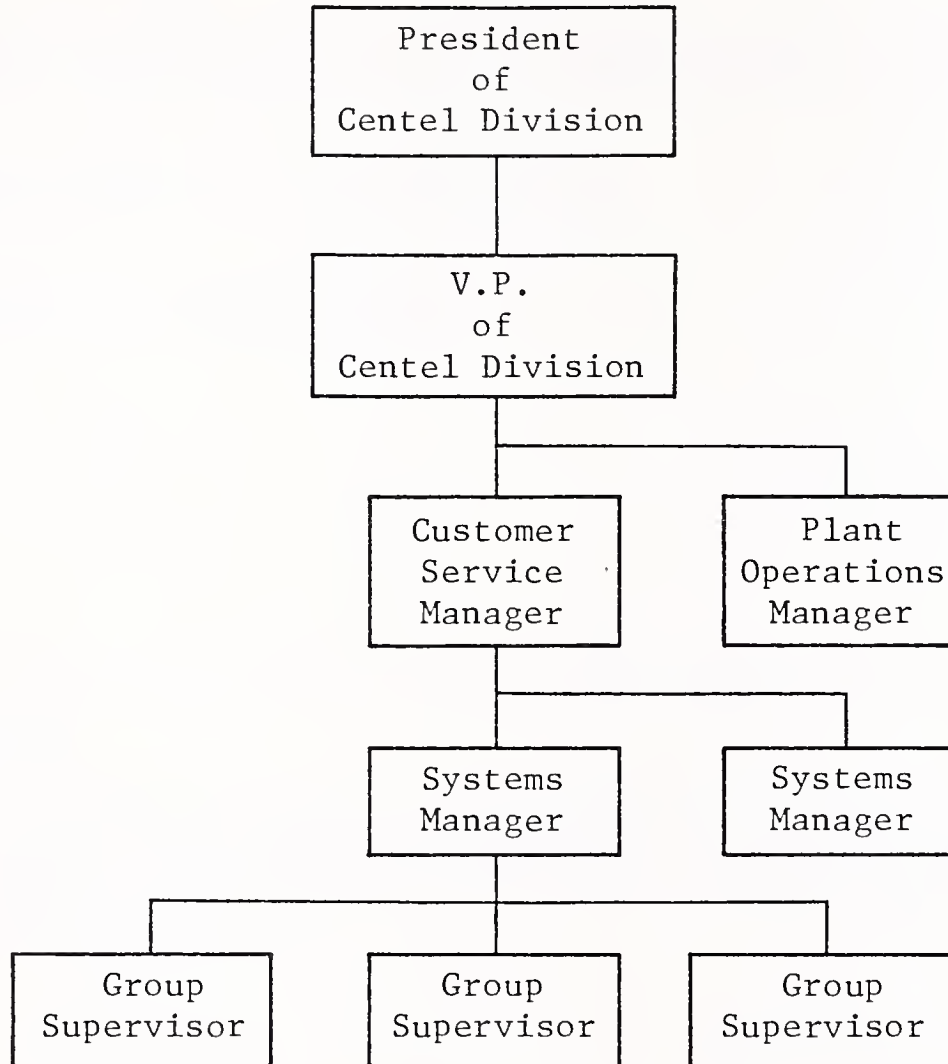
5. CS Staff Distribution

	Headcount	Direct Expense
Staff	10	12
Operations	90	88

Vendor:	DIGITAL EQUIPMENT CORPORATION	Date Prepared:	7/5/84

1. Services Organization

Basic breakdown of DEC service is that the line organization covers actual repairs, some local planning and some administration (in the field).

The staff organization, based in Massachusetts, is primarily a planning and administrative unit at the corporate level.

Line organization does have limited hiring/firing personnel authority, but most personnel is a staff function.

2. Staff Functions

The staff function of field service at DEC is becoming more and more autonomous from the DEC organization proper. Currently, they handle all data systems and logistics, most marketing and planning, and a great deal of personnel.

- [X] Data Systems 100% FS
- [X] Personnel

- [X] Financial Planning – Most
- [X] Strategic Planning – Most

- [X] Logistics 100%
- [X] Marketing – Most

3. Other Non-CS Staff

Majority of planning and operational functions are done by Field Service, but some areas must still be coordinated with the appropriate corporate groups. These areas include Personnel, Planning, and Marketing.

4. Geographic Deployment

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                          ┌─────────────┐
                          │     VP      │
                          │  Sales &    │
                          │  Service    │
                          └──────┬──────┘
        ┌────────────────────────┼────────────────────────┐
┌───────────────┐        ┌───────────────┐        ┌───────────────┐
│    Head       │        │    Head       │        │    Head       │
│   Europe      │        │    U.S.       │        │   General     │
└───────────────┘        └───────┬───────┘        └───────────────┘
                    ┌────────────┼────────────┐
            ┌───────────┐ ┌───────────┐ ┌───────────┐
(Geographically │Management │ │Management │ │Management │
   Based)   │  Center   │ │  Center   │ │  Center   │
            └───────────┘ └─────┬─────┘ └───────────┘
                      ┌──────────┴──────────┐
                 ┌─────────┐          ┌─────────┐
                 │ Region  │          │ Region  │
                 └────┬────┘          └─────────┘
              ┌────────────────┐
              │   Numerous     │
              │ Districts per  │
              │    Region      │
              └────────────────┘
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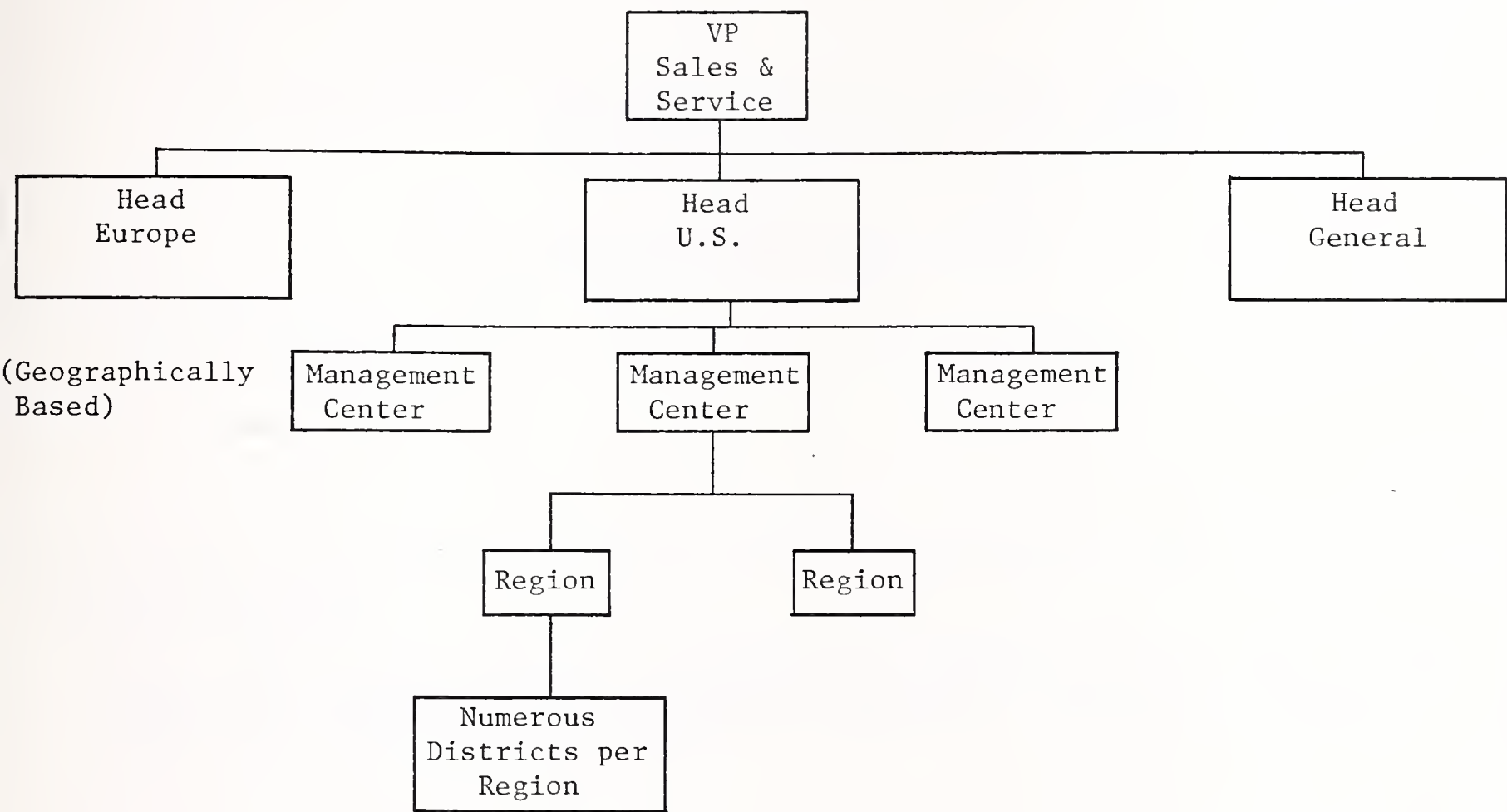
5. CS Staff Distribution

	Headcount	Direct Expense
Staff	14	17
Operations	86	83

INPUT estimate

Vendor: HEWLETT PACKARD	Date Prepared: 7/5/84

1. Services Organization

HP Customer Service Division:

Line organization – all actual repairs (in field or depots). Includes field engineers, support staff, branch, area, and regional managers.

Staff – all administrative and planning functions. Centrally located in California.

Some line managers (about 1-2%),primarily regional managers, are also staff.

2. Staff Functions

The customer support division is generally autonomous, although there is some "sharing" of administrative departments (see below). "We drive all support functions" according to HP respondent.

[X] Data Systems – 100%

[X] Personnel – 60-85%

[X] Financial Planning – 60-70%

[X] Strategic Planning – 100%

[X] Logistics – 100%

[X] Marketing – 95%

3. Other Non-CS Staff

Customer support will "share" personnel, accounting,and (consolidated)finance with other departments. Support personnel also work closely with manufacturing and marketing to insure maintainability and a common marketing approach. The General Manager for Support reports to the V.P. for Marketing.

4. Geographic Deployment

COMPUTER SUPPORT DIVISION

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                        ┌──────────┐
                        │ General  │
                        │ Manager  │
                        └────┬─────┘
     ┌────────────┬──────────┼──────────────┬────────────────┐
┌─────────┐ ┌───────────┐ ┌──────────┐ ┌─────────┐ ┌───────────────┐
│ Finance │ │ Marketing │ │  Field   │ │  R & D  │ │ Manufacturing │
└─────────┘ └───────────┘ │Operations│ └─────────┘ └───────────────┘
                          └────┬─────┘
          ┌────────────────┬───┴───────────┬──────────────────┐
    ┌──────────┐    ┌──────────┐    ┌──────────────┐    ┌───────────┐
    │ Hardware │    │ Software │    │    Spares    │    │ Refurbish │
    │ Support  │    │ Support  │    │ Distribution │    │   Parts   │
    └────┬─────┘    └──────────┘    └──────────────┘    └───────────┘
    ┌────┴────┐
┌─────────┐ ┌───────┐
│ On-site │ │ Depot │
└─────────┘ └───────┘
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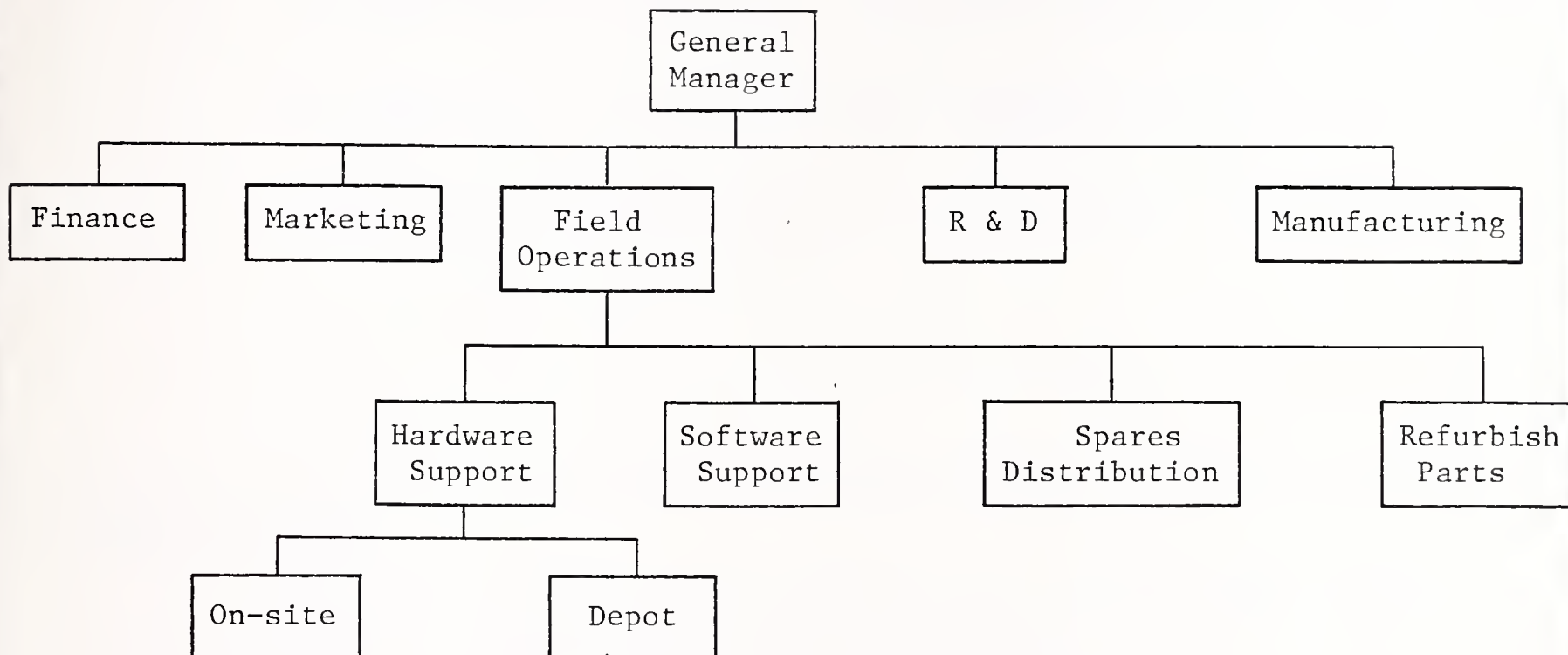
5. CS Staff Distribution

	Headcount	Direct Expense
Staff	20	24
Operations	80	76

INPUT estimate

Vendor: HONEYWELL	Date Prepared: 7/3/84

1. Services Organization

The Honeywell service organization is broken out into three separate sections:

- Market and Business Management - most staff functions (see organization chart), but also includes a "generic" technical support function.

- Field Operations - all line functions including field operations, central support and "site specific" support functions, and data systems.

- Distribution Operations - logistics, central repair depots, parts clusters, and catalog sales.

2. Staff Functions

- "Management Processes" are considered part of the Customer Services Division - marketing and sales responsibility.

- Business Management, including planning, profitabiliy, maintainability.

Almost all staff functions are now part of the Market and Business Management Group.

[X] Data Systems - 100%	[X] Financial Planning	[X] Logistics - 100%
[X] Personnel - 95%	[X] Strategic Planning	[X] Marketing - 100%

3. Other Non-CS Staff

Most staff functions are part of Customer Services Division. The Customer Services Division does, at times, consult with the corporate administrative function, but it is just that - consultations.

CSD has full authority in administrative matters.

4. Geographic Deployment

Field Operations is regional in nature.

Both Market and Business Management, and the Distribution Operations
are centrally located in Massachusetts

(See organization chart on next pages.)

An organization chart is not available for Distribution Operations or
Field Operations. Both are assumed to be regional organizations.
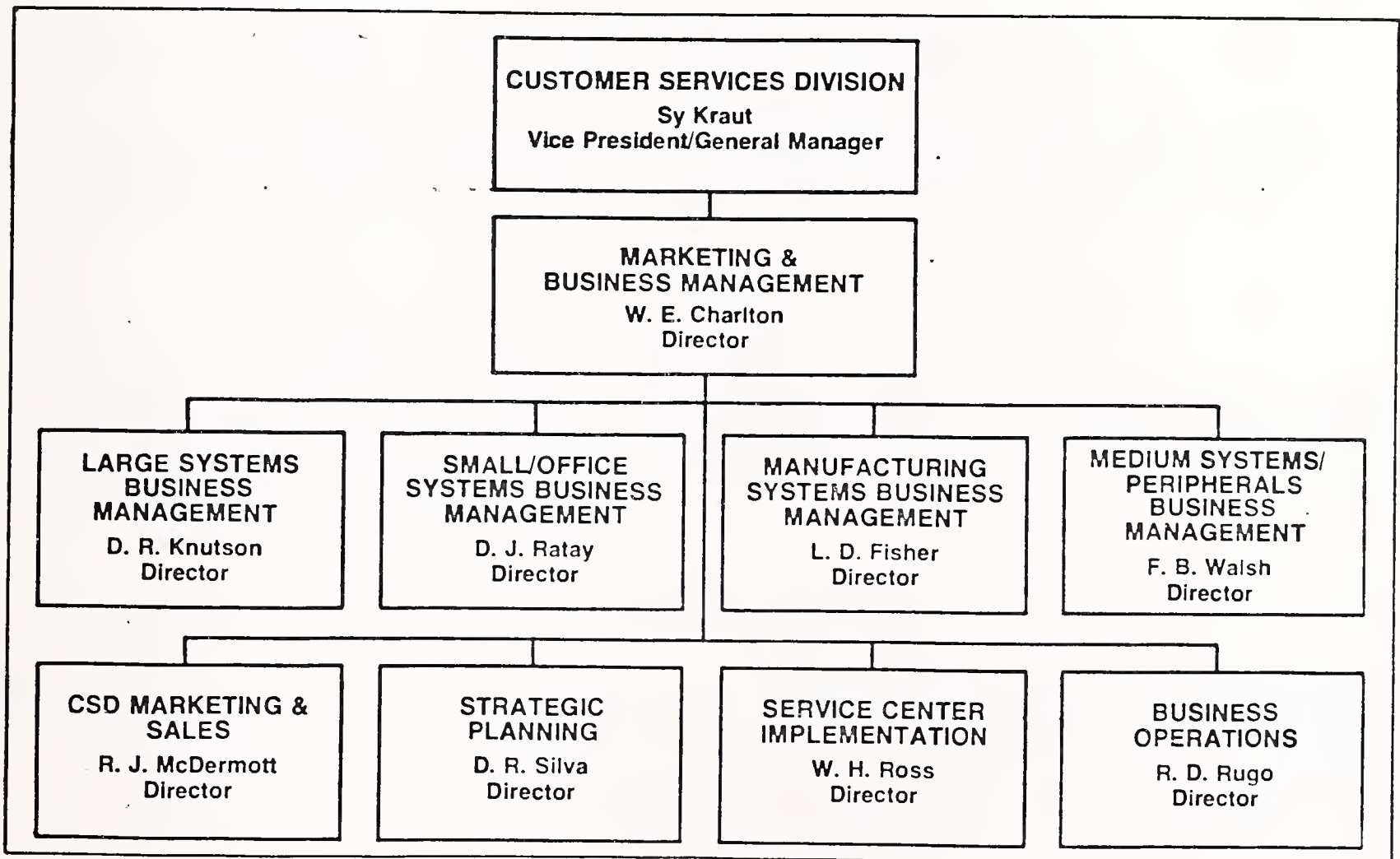
5. CS Staff Distribution

	Headcount	Direct Expense
Staff	14	16
Operations	86	84

Honeywell

MARKETING & BUSINESS MANAGEMENT

Organizational Announcement

I am pleased to announce the newly structured CSD Marketing & Business Management organization, that becomes effective on September 30, 1983.

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                    ┌─────────────────────────────────┐
                    │   CUSTOMER SERVICES DIVISION      │
                    │           Sy Kraut                │
                    │ Vice President/General Manager    │
                    └─────────────────────────────────┘
                                   │
                    ┌─────────────────────────────────┐
                    │         MARKETING &               │
                    │    BUSINESS MANAGEMENT            │
                    │        W. E. Charlton             │
                    │          Director                 │
                    └─────────────────────────────────┘
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LARGE SYSTEMS BUSINESS MANAGEMENT	SMALL/OFFICE SYSTEMS BUSINESS MANAGEMENT	MANUFACTURING SYSTEMS BUSINESS MANAGEMENT	MEDIUM SYSTEMS/ PERIPHERALS BUSINESS MANAGEMENT
D. R. Knutson Director	D. J. Ratay Director	L. D. Fisher Director	F. B. Walsh Director

CSD MARKETING & SALES	STRATEGIC PLANNING	SERVICE CENTER IMPLEMENTATION	BUSINESS OPERATIONS
R. J. McDermott Director	D. R. Silva Director	W. H. Ross Director	R. D. Rugo Director

This move combines the Business Management Operation, Technical Support home office organizations and Customer Services Sales into a single operation. The combining of these organizations supports two key divisional objectives:

1. To create a single point for division level decisions, accountability and communication with the System Group divisions and the Marketing Operations;

2. To initiate a significant thrust into the fast growing third-party service marketplace.

This organization will be key to CSD's continued profitable growth in the service marketplace through the '80s.

Each of the new organization's managers will have increased responsibility and delegated authority in support of these new charters. Departmental functions and organizations for the new CSD Marketing & Business Management operation are briefly outlined on the following pages.

Bill Charlton
Director,
CSD Marketing & Business
Management

CSD Marketing & Sales

The CSD Marketing & Sales organization is a dedicated resource responsible for developing third-party markets for CSD service products, the pricing and selling of these services, and for supporting CSD field sales and US marketing special service (big buy) requirements. Each of the product marketing groups is responsible for developing product marketing strategy, sales tools, logistics programs and management processes to support their activities.

National Sales

This sales force is responsible for developing prospects and supporting the customer base while profitably selling all CSD third-party service contracts.
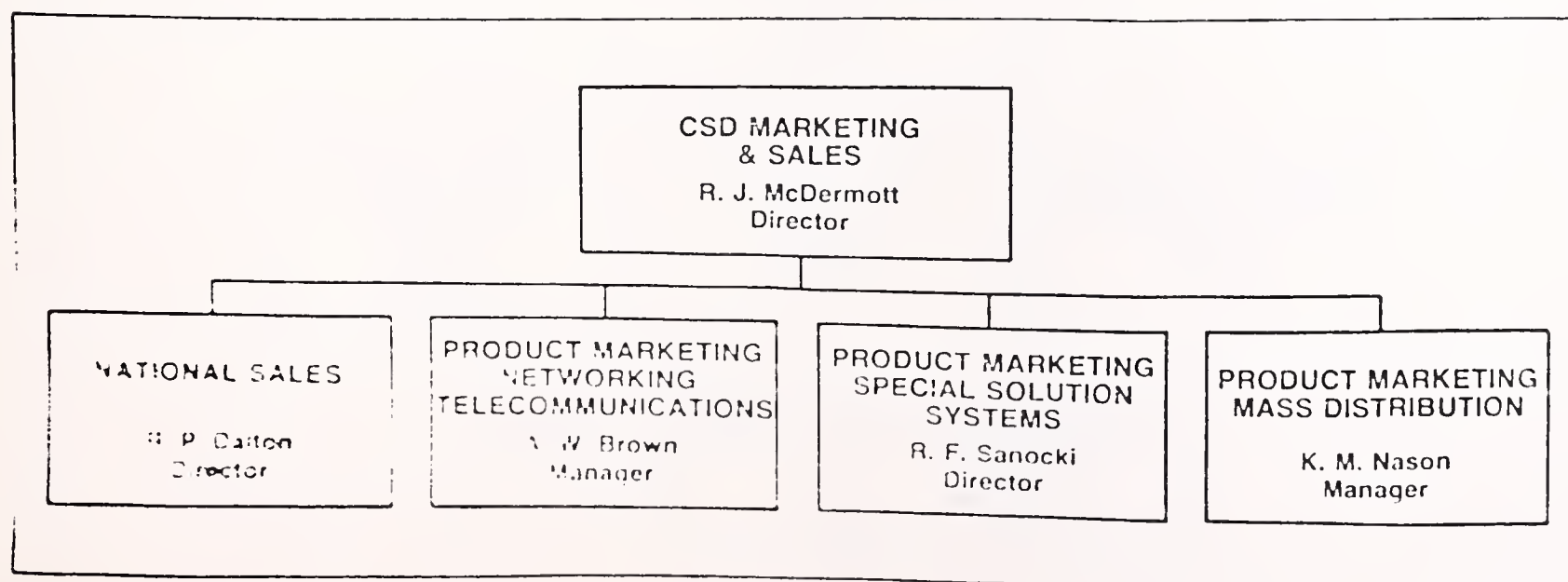
Product Marketing — Networking/Telecommunication

This group develops strategies, supports CSD third-party sales activity and new business opportunities for networking and telecommunications products. It is also responsible for the systems management and support of standard networking and telecommunication products in direct support of ASD.

Product Marketing — Mass Distribution

This function is the key product marketing activity for CSD third-party service and national service contracts. It is responsible for developing product marketing strategy, sales tools and management processes in support of third-party Mass Distribution Products, with the primary thrust on microprocessor-based systems and peripherals.

Product Marketing — Special Solution Systems

This group develops strategies and supports ASD application products, as well as provides the CSD review and approval for service-related pricing and terms on contracts in support of USMSG's large bid proposals and RPQs. It will develop the processes for the CSD field organization to follow in their local activity for third-party service opportunities, act as the headquarters support organization and provide review and approval for nonstandard proposals. This group also develops markets which capitalize on CSD's own service, distribution and logistics capabilities.

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                    ┌─────────────────────┐
                    │   CSD MARKETING      │
                    │      & SALES         │
                    │                      │
                    │   R. J. McDermott    │
                    │      Director        │
                    └─────────────────────┘
                               │
   ┌───────────────┬───────────┴──────────┬───────────────────┐
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│ NATIONAL │ │   PRODUCT    │ │   PRODUCT    │ │   PRODUCT    │
│  SALES   │ │  MARKETING   │ │  MARKETING   │ │  MARKETING   │
│          │ │  NETWORKING  │ │   SPECIAL    │ │     MASS     │
│          │ │ TELECOMMUNI- │ │  SOLUTION    │ │ DISTRIBUTION │
│          │ │   CATIONS    │ │   SYSTEMS    │ │              │
│ P. Dalton│ │  W. Brown    │ │ R. F. Sanocki│ │ K. M. Nason  │
│ Director │ │   Manager    │ │   Director   │ │   Manager    │
└──────────┘ └──────────────┘ └──────────────┘ └──────────────┘
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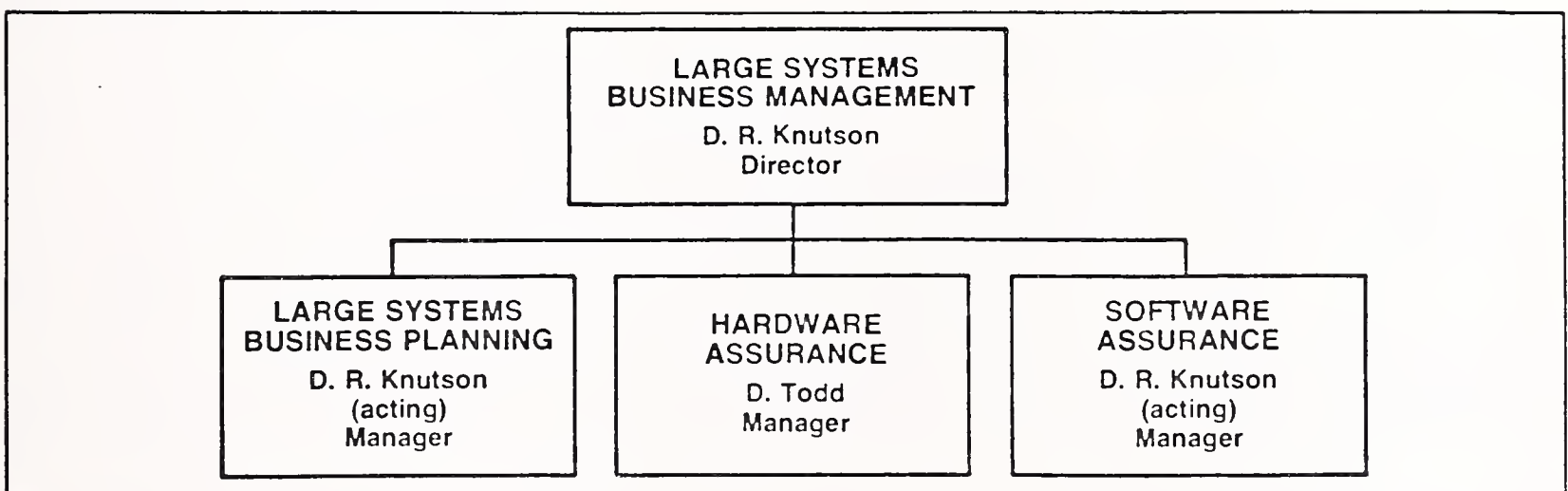
Business Management

Each Business Management function has the responsibility for directing the total CSD life cycle business and technical planning process for the products produced by the respective Systems Group divisions and ensuring that product line business results and techncial performance achieve divisional and group objectives.

Specific accountabilities within CSD include product profitability and technical performance, defining business objectives and maintenance strategies for each product line, and developing worldwide maintenance requirements, Long Range, Operational and Product Business Plans. In addition, Business Management is responsible for the CSD approval of the life cycle planning process documents such as Market Requirements, Product Functional Specifications, EPSs, Product Line Notices (PLNs) and Policy & Contract Notices, ensuring that these documents support CSD business objectives.

This function is responsible for product maintainability and will initiate corrective actions with the producer organizations to insure products meet quality, business, and technical objectives.

This function also has direct accountability for working closely with the TACs on current generic product problems that require escalation to the divisions, as well as providing prime support to the international Customer Service affiliates.

Large Systems Business Management — This group will direct the full scope of business and technical support functions for all products managed by the Large Computer Products Division (LCPD) in Phoenix.

```
                    LARGE SYSTEMS
                 BUSINESS MANAGEMENT
                     D. R. Knutson
                        Director

    LARGE SYSTEMS         HARDWARE          SOFTWARE
  BUSINESS PLANNING       ASSURANCE        ASSURANCE
    D. R. Knutson          D. Todd        D. R. Knutson
      (acting)             Manager          (acting)
      Manager                               Manager
```

Medium Systems & Peripherals Business Management — This group will provide full business and technical support for medium systems products and generic peripheral products.

```
                  PERIPHERAL &
                MEDIUM SYSTEMS
              BUSINESS MANAGEMENT
                   F. B. Walsh
                    Director

  MEDIUM SYSTEMS     PERIPHERAL PRODUCT    MATURE PRODUCTS
    ASSURANCE            ASSURANCE       BUSINESS PLANNING
    F. B. Walsh          J. Varner           D. Blair
     (acting)            Manager             Manager
     Manager

      MEDIUM SYSTEMS          PERIPHERALS
    BUSINESS PLANNING      BUSINESS PLANNING
       J. Schmidt             P. Laingen
        Manager               Manager
```
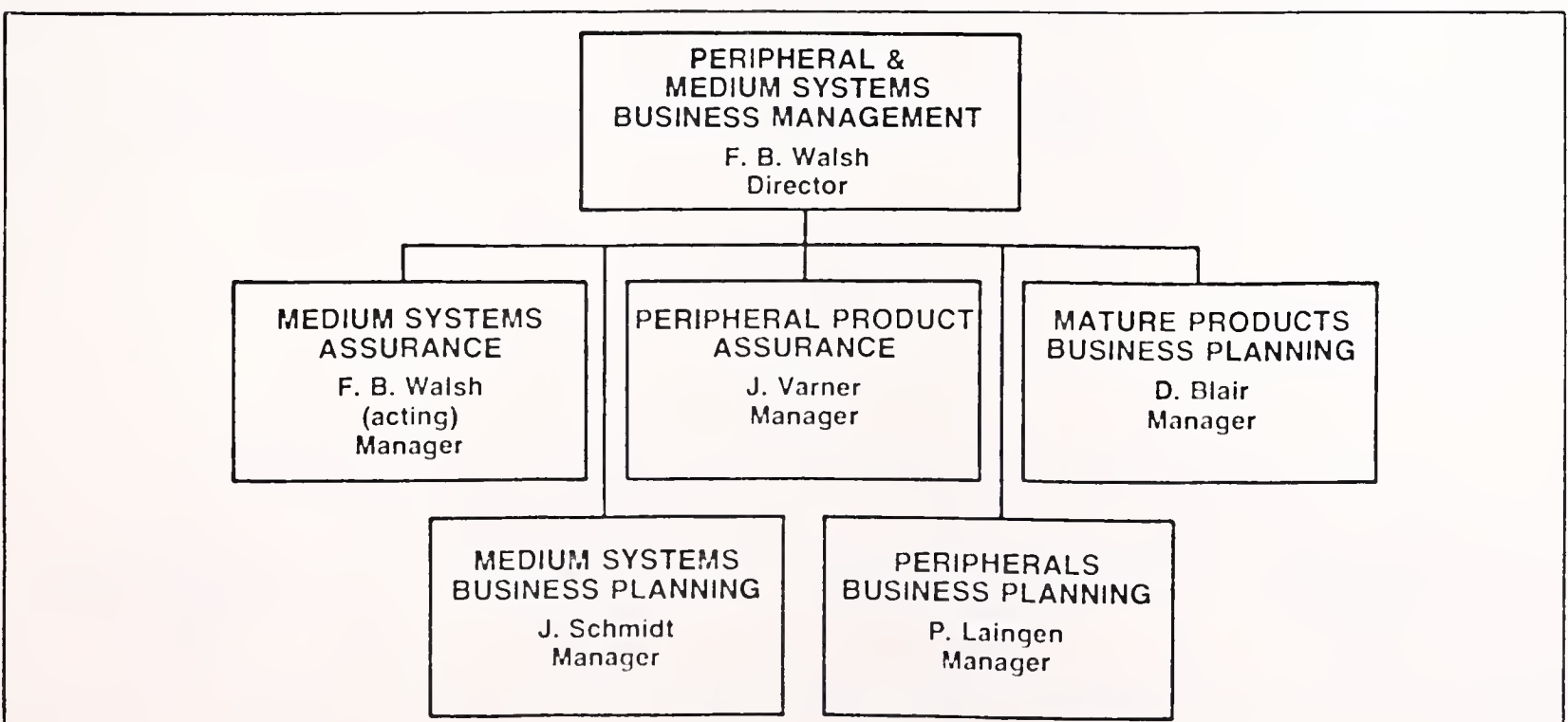
Small/Office Systems Business Management — This group provides full business and technical support for all systems and products produced and managed by the Office Management Systems Division (OMSD), headquartered in Billerica.

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                    ┌─────────────────────────────┐
                    │   SMALL/OFFICE SYSTEMS      │
                    │   BUSINESS MANAGEMENT       │
                    │        D. J. Ratay          │
                    │        Director             │
                    └─────────────────────────────┘

┌──────────────────┐  ┌──────────────────┐  ┌──────────────────┐  ┌──────────────────┐
│  SMALL SYSTEMS   │  │  SMALL SYSTEMS   │  │  OFFICE SYSTEMS  │  │    TERMINALS     │
│ BUSINESS PLANNING│  │    ASSURANCE     │  │   PLANNING &     │  │   PLANNING &     │
│                  │  │                  │  │   ASSURANCE      │  │   ASSURANCE      │
│   R. DeJohn      │  │   J. Donnelly    │  │   D. J. Ratay    │  │   R. Heale       │
│   Manager        │  │   Manager        │  │   (acting)       │  │   Manager        │
│                  │  │                  │  │   Manager        │  │                  │
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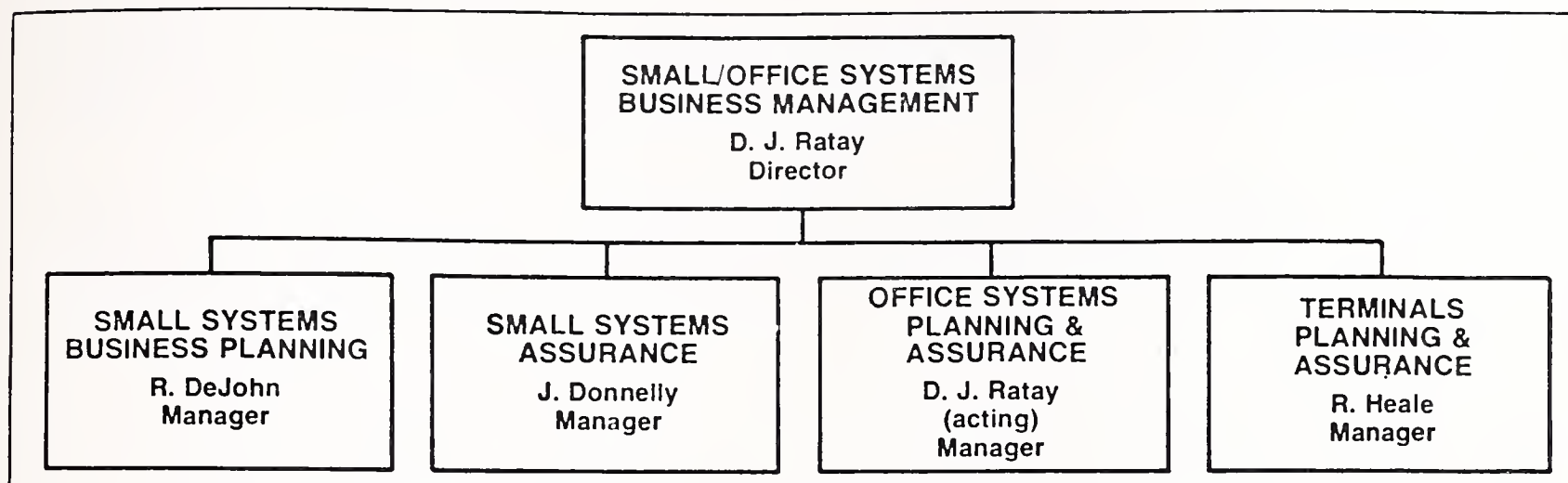
Manufacturing Systems Business Management — This function directs the full scope of technical and business support for the Phoenix-based Manufacturing Systems Division (MDS). Larry Fisher will start up and direct this function.
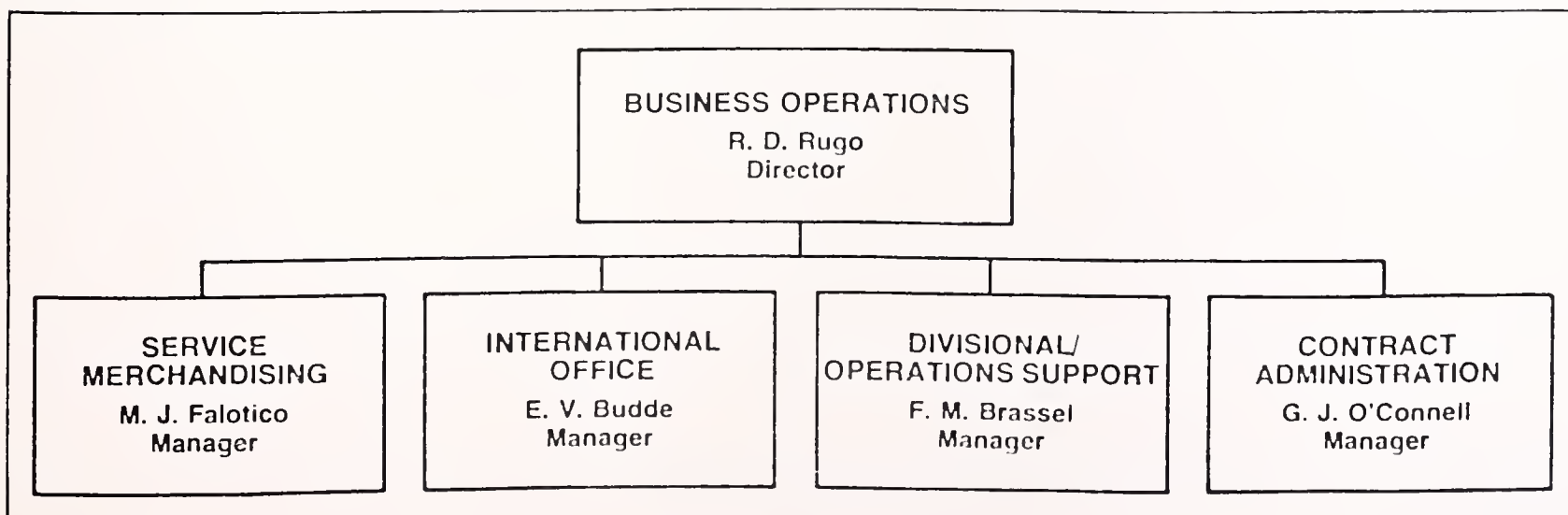
Business Operations

Business Operations is responsible for managing division level support programs for CSD with the following areas of concentration and responsibilities.

Service Merchandising has responsibility for CSD marketplace visibility and public relations strategy. This includes the development of CSD advertising campaigns, public/service industry announcement bulletins and press releases; providing sales promotion materials, as well as the Sales Reference Handbook and planning for the announcement of CSD services.

International/IS includes coordination functions for the worldwide Customer Service Council and acts as its representative in the Technical Operation Council and Logistics Operations Council. It also represents CSD in the development of worldwide maintenance requirements and IS policies and procedures.

Divisional/Operations Support involves developing and maintaining CSD operating policies and procedures, administration of divisional goals, the suggestion program and operations level quality focus and productivity improvement tools, and staff support. It also has responsibility for direction and operating management of the CSD planning process, which includes the development of long range and operating plans; the coordination, administration and integration of planning activities including the step process, planning document responses and approvals within CSD, as well as between CSD and USMSG; and the management of systems operations.

Contract Administration includes providing negotiation support and acting as the CSD focus for developing and improving service terms and conditions (T&C), and for developing contract requirements.

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                    ┌─────────────────────────────┐
                    │   BUSINESS OPERATIONS       │
                    │        R. D. Rugo           │
                    │        Director             │
                    └─────────────────────────────┘

┌──────────────────┐  ┌──────────────────┐  ┌──────────────────┐  ┌──────────────────┐
│    SERVICE       │  │  INTERNATIONAL   │  │   DIVISIONAL/    │  │    CONTRACT      │
│  MERCHANDISING   │  │     OFFICE       │  │OPERATIONS SUPPORT│  │ ADMINISTRATION   │
│                  │  │                  │  │                  │  │                  │
│  M. J. Falotico  │  │   E. V. Budde    │  │   F. M. Brassel  │  │  G. J. O'Connell │
│    Manager       │  │    Manager       │  │    Manager       │  │    Manager       │
└──────────────────┘  └──────────────────┘  └──────────────────┘  └──────────────────┘
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Vendor:	IBM	Date Prepared:	7/6/84

1. Services Organization

IBM has two service divisions (Field Engineering and Customer Service). Field Engineering is part of the Information Systems Group and is responsible for large and intermediate systems service. Customer Service typically services small systems and telecommunication products.

Both service divisions have their own staff groups and line groups. Typically, line = field service/repair, while staff = planning/administration. The two divisions do share some staff and line functions when possible.

2. Staff Functions

Both service divisions have their own complete staff groups. Staff is responsible for all administrative functions, however, the divisions are strongly influenced by corporate policies.

[X] Data Systems   [X] Financial Planning   [X] Logistics

[X] Personnel   [X] Strategic Planning   [X] Marketing

3. Other Non-CS Staff

The IBM respondent stressed that although the service divisions did possess a great deal of autonomy in most decision making areas, they must always be subject to corporate decisions.

4. Geographic Deployment

see chart next page

5. CS Staff Distribution

	Headcount	Direct Expense
Staff	15	20
Operations	85	80

IBM MAINTENANCE SERVICES

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                          President,
                      Customer Service
                          Division
                              |
    ┌──────────┬──────────┬───┴──────┬──────────┬──────────┐
    |          |          |          |          |          |
Vice President Vice President Vice President Vice President Vice President Vice President
Management    Plans &       Service        Service &      Operations     Operations
Services      Control       Business       Planning       (East)         (West)
    |          |          |          |
Personnel    Operational  Market Research  Divisional
Communications Planning                    Planning
    |          |          |
HQ Administ-  Operational  Customer Needs
ration        Control

Legal Counsel

Director of Quality
```

Regional Offices: 16
Branch Offices: 160
Customer Engineers: 12,000

NOTES: (1) FSD (large mainframes) is organized the same as CSD; except that there are 14 regional offices, 180 branch offices and 11,000 field engineers

(2) Both of these organizational charts include software support people.

INPUT

Vendor: NEC	Date Prepared: 7/5/84

1. Services Organization

Line organization typically handles all repairs and some administrative functions in the field. Line would include F.E.'s and supporting staff as well as first line managers.

Staff (field service) is centralized and handles most division planning and division functions. First line managers and above are usually included in this group.

2. Staff Functions

The field engineering division has its own data systems group which is autonomous from the corporate group. Financial and strategic planning are also handled primarily by the F.E. division. Occasionally, sales will ask the F.E. division to assist in a marketing function, but this is usually not a F.E. staff function.

[X] Data Systems – 100%   [X] Financial Planning – Most   [X] Logistics – Most

[X] Personnel – Limited   [X] Strategic Planning – Most   [X] Marketing – Limited

3. Other Non-CS Staff

Corporate departments take care of personnel and marketing functions. Accounting is also primarily a corporate function.

Other staff functions, such as planning and logistical support, are normally controlled by the F.E. division.

4. Geographic Deployment

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                                    ┌─────────────┐
                                    │  President  │
                                    │     of      │
                                    │    NEC      │
                                    └─────────────┘
        ┌──────────┬──────────────┬──────────────┬──────────────┐
  ┌───────────┐ ┌────────────┐ ┌──────────┐ ┌────────┐ ┌────────┐
  │ Marketing │ │ Accounting │ │   VP     │ │  VP    │ │ Other  │
  └───────────┘ └────────────┘ │ Key      │ │  PBX   │ └────────┘
                                │ Systems  │ └────────┘
                                └──────────┘
                 ┌──────────────┐          ┌──────────────┬──────────────┐
          ┌────────────┐ ┌────────────┐ ┌────────────┐ ┌────────────┐ ┌────────────┐
          │  Director  │ │  Director  │ │  Director  │ │  Director  │ │  Director  │
          │Engineering │ │Engineering │ │Engineering │ │Engineering │ │Engineering │
          └────────────┘ └────────────┘ └────────────┘ └────────────┘ └────────────┘
```

```
┌──────────┐ ┌────────────┐ ┌──────────┐ ┌──────────┐   ┌────────┐  ┌────────┐  ┌────────┐
│ Manager  │ │  Manager   │ │ Manager  │ │ Manager  │   │ Other  │  │ Other  │  │ Other  │
│   Lab    │ │ Engineers  │ │ Training │ │  F.E.    │   └────────┘  └────────┘  └────────┘
└──────────┘ └────────────┘ └──────────┘ └──────────┘
                  ┌──────────────┬──────────────┬──────────────┐
            ┌─────────────┐ ┌─────────────┐ ┌─────────────┐ ┌─────────────┐
            │ Supervisor* │ │ Supervisor* │ │ Supervisor* │ │ Supervisor* │
            └─────────────┘ └─────────────┘ └─────────────┘ └─────────────┘
                        ┌──────────┬──────────┐
                   ┌────────┐ ┌────────┐ ┌────────┐
                   │  F.E.  │ │  F.E.  │ │  F.E.  │
                   └────────┘ └────────┘ └────────┘
```
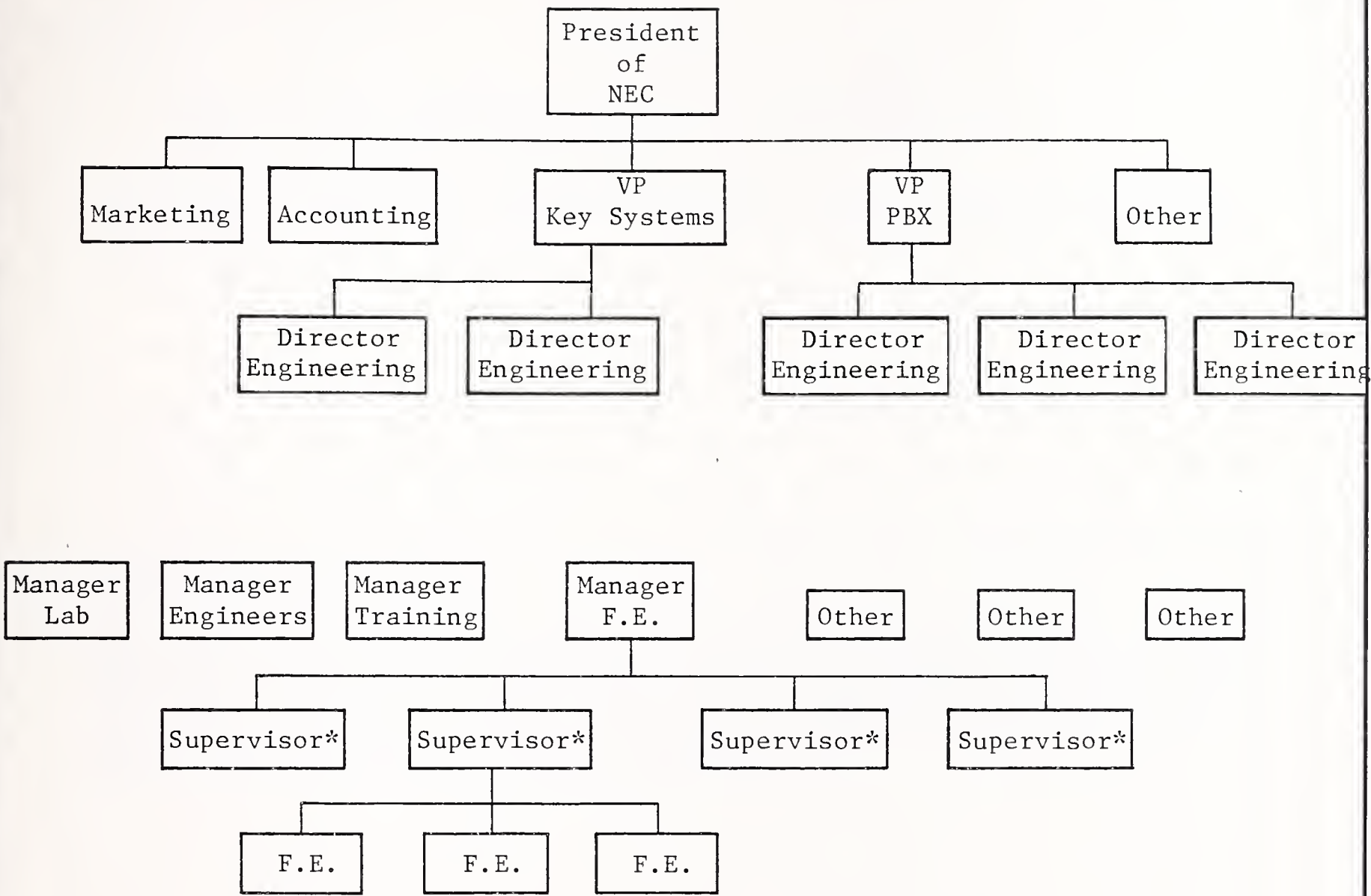
* Supervisor is geographically based

5. CS Staff Distribution

	Headcount	Direct Expense
Staff	40	60
Operations	60	40

Interviewer estimate

Vendor: NORTHERN TELECOM	Date Prepared: 7/5/84

1. Services Organization

The general breakdown between staff and line functions is:

- Administration, planning, clerical is a staff function,
- Technical/repair services is a line function.

Individuals, particularly supervisors and line managers, may be considered both line _and_ staff personnel.

2. Staff Functions

Typically, line managers and above perform Field Engineering staff functions. These duties include: hire and fire personnel, logistics operations, dispatching, manpower allocation, some market surveys/research, some financial and strategic planning. The F.E. division is a profit/loss center and is given a certain amount of planning flexibility.

[X] Data Systems - Most   [X] Financial Planning - Most   [X] Logistics - Most

[X] Personnel - Some   [X] Strategic Planning - Most   [X] Marketing - Some
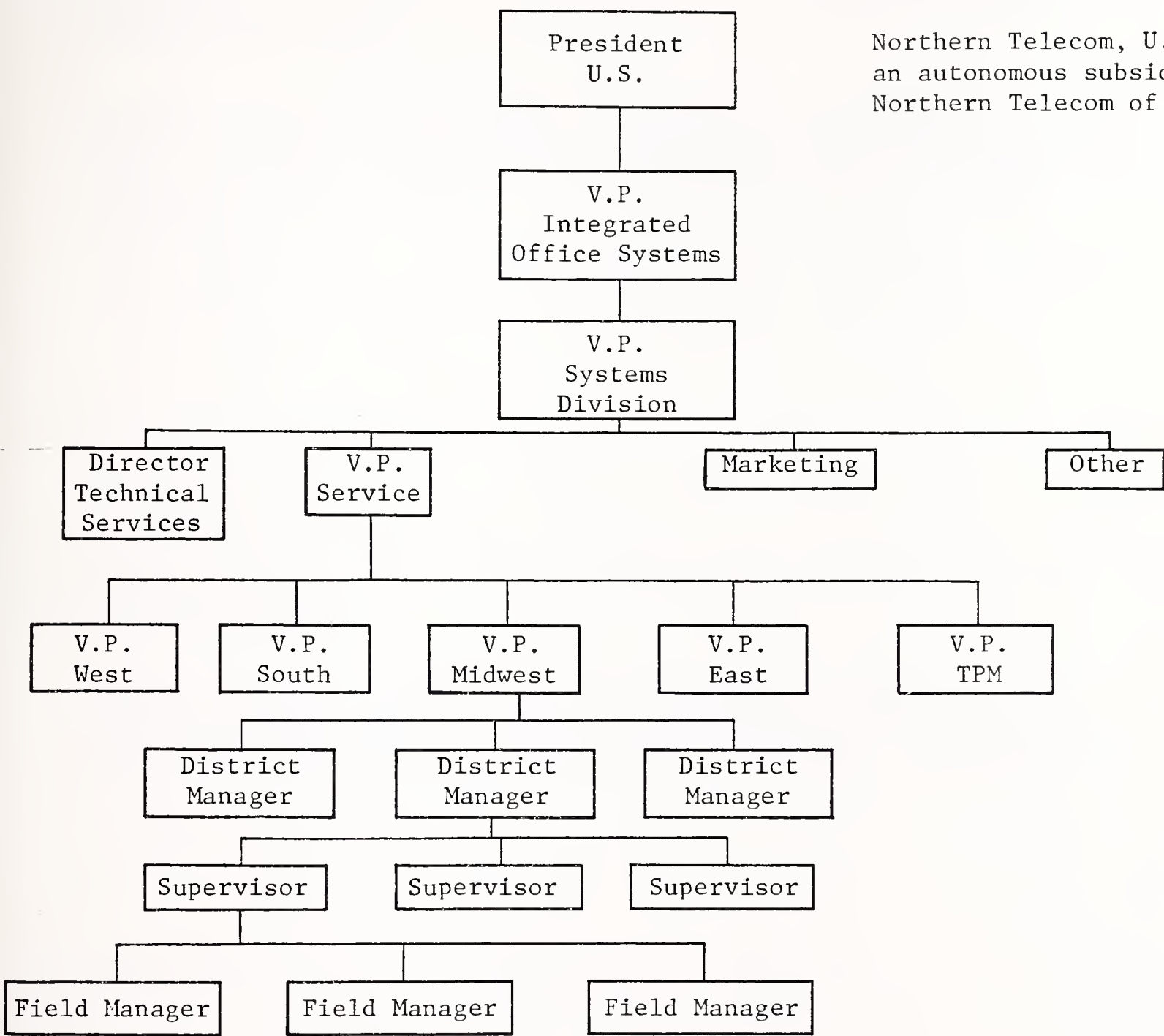
3. Other Non-CS Staff

Accounting, personnel, and marketing are normally performed by the respective corporate departments.

4. Geographic Deployment

```
                        ┌──────────────┐
                        │  President   │       Northern Telecom, U.S.A. is
                        │     U.S.     │       an autonomous subsidiary of
                        └──────┬───────┘       Northern Telecom of Canada.
                               │
                        ┌──────┴───────┐
                        │    V.P.      │
                        │  Integrated  │
                        │Office Systems│
                        └──────┬───────┘
                               │
                        ┌──────┴───────┐
                        │    V.P.      │
                        │  Systems     │
                        │  Division    │
                        └──────┬───────┘
   ┌───────────┬───────────┬───┴──────────────────────┬──────────────┐
┌──┴──────┐ ┌──┴────┐                            ┌─────┴─────┐  ┌─────┴────┐
│Director │ │ V.P.  │                            │ Marketing │  │  Other   │
│Technical│ │Service│                            └───────────┘  └──────────┘
│Services │ └──┬────┘
└─────────┘    │
   ┌───────┬───┼───────┬───────────┐
┌──┴──┐ ┌──┴──┐ ┌──┴──┐ ┌──┴──┐ ┌──┴──┐
│V.P. │ │V.P. │ │V.P. │ │V.P. │ │V.P. │
│West │ │South│ │Midwest││East│ │TPM  │
└─────┘ └─────┘ └──┬──┘ └─────┘ └─────┘
      ┌────────────┼────────────┐
   ┌──┴─────┐ ┌────┴───┐ ┌──────┴─┐
   │District│ │District│ │District│
   │Manager │ │Manager │ │Manager │
   └──┬─────┘ └────┬───┘ └──────┬─┘
   ┌──┴─────┐ ┌────┴────┐ ┌─────┴────┐
   │Supervisor││Supervisor││Supervisor│
   └──┬─────┘ └────┬────┘ └─────┬────┘
┌─────┴──┐ ┌───────┴────┐ ┌─────┴──────┐
│Field   │ │Field       │ │Field       │
│Manager │ │Manager     │ │Manager     │
└────────┘ └────────────┘ └────────────┘
```

5. CS Staff Distribution

	Headcount	Direct Expense
Staff	12	14
Operations	88	86

INPUT file

| Vendor: ROLM CORPORATION | Date Prepared: 7/17/84 |

1. Services Organization

Customer support is divided into two separate organizations (see chart, page 2). District Customer Support is divided into: line organization = primarily in-field repairs; staff organization = planning and administration.

Field operation is a line support organization at the corporate level.

2. Staff Functions

District Customer Support is cut autonomously from other district divisions. Almost all personnel at the district level perform some staff functions including most planning, dispatching, logistics, etc.

[X] Data Systems   [X] Financial Planning   [X] Logistics
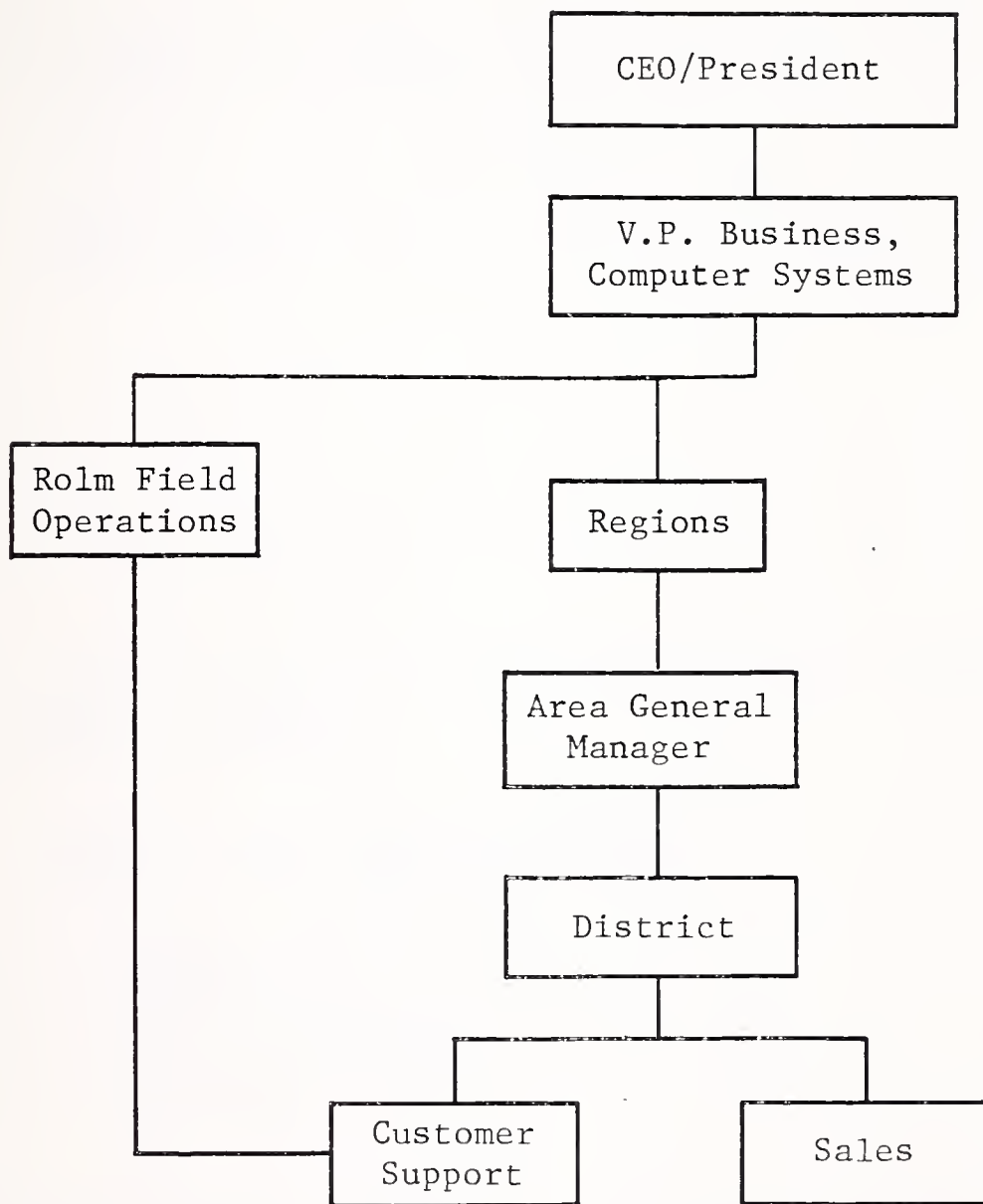
[X] Personnel - some   [ ] Strategic Planning   [ ] Marketing

3. Other Non-CS Staff

Rolm corporate functions include most accounting and marketing and some personnel. Personnel is primarily in the record keeping and policy making rather than actual day-to-day administration.

4. Geographic Deployment

```
                    ┌─────────────────┐
                    │  CEO/President  │
                    └────────┬────────┘
                             │
                    ┌────────┴────────┐
                    │ V.P. Business,  │
                    │ Computer Systems│
                    └────────┬────────┘
           ┌─────────────────┤
  ┌────────┴────────┐   ┌─────┴─────┐
  │ Rolm Field      │   │  Regions  │
  │ Operations      │   └─────┬─────┘
  └────────┬────────┘         │
           │          ┌───────┴───────┐
           │          │ Area General  │
           │          │   Manager     │
           │          └───────┬───────┘
           │                  │
           │          ┌───────┴───────┐
           │          │   District    │
           │          └───────┬───────┘
           │          ┌───────┴───────┐
  ┌────────┴────────┐ │               ┌───────────┐
  │   Customer      │ │               │   Sales   │
  │   Support       │ │               └───────────┘
  └─────────────────┘
```

5. CS Staff Distribution

	Headcount	Direct Expense
Staff	10	14
Operations	90	86

Vendor: SORBUS	Date Prepared: 7/5/84

1. Services Organization

All customer service functions, including staff and line functions, are part of the Sorbus customer service operation.

Operations include field service.

Staff includes all administrative functions, such as marketing, human resources, and finance.

2. Staff Functions

Primary staff functions include:

- Human resources
- Marketing
- Catalog supplies
- Finance/accounting
- Planning

[X] Data Systems - 100%   [X] Financial Planning - 100%   [X] Logistics - 100%

[X] Personnel - 100%   [X] Strategic Planning - 100%   [X] Marketing - 100%

3. Other Non-CS Staff

There are no other non-CS staff functions.

4. Geographic Deployment

National (centralized) organization.
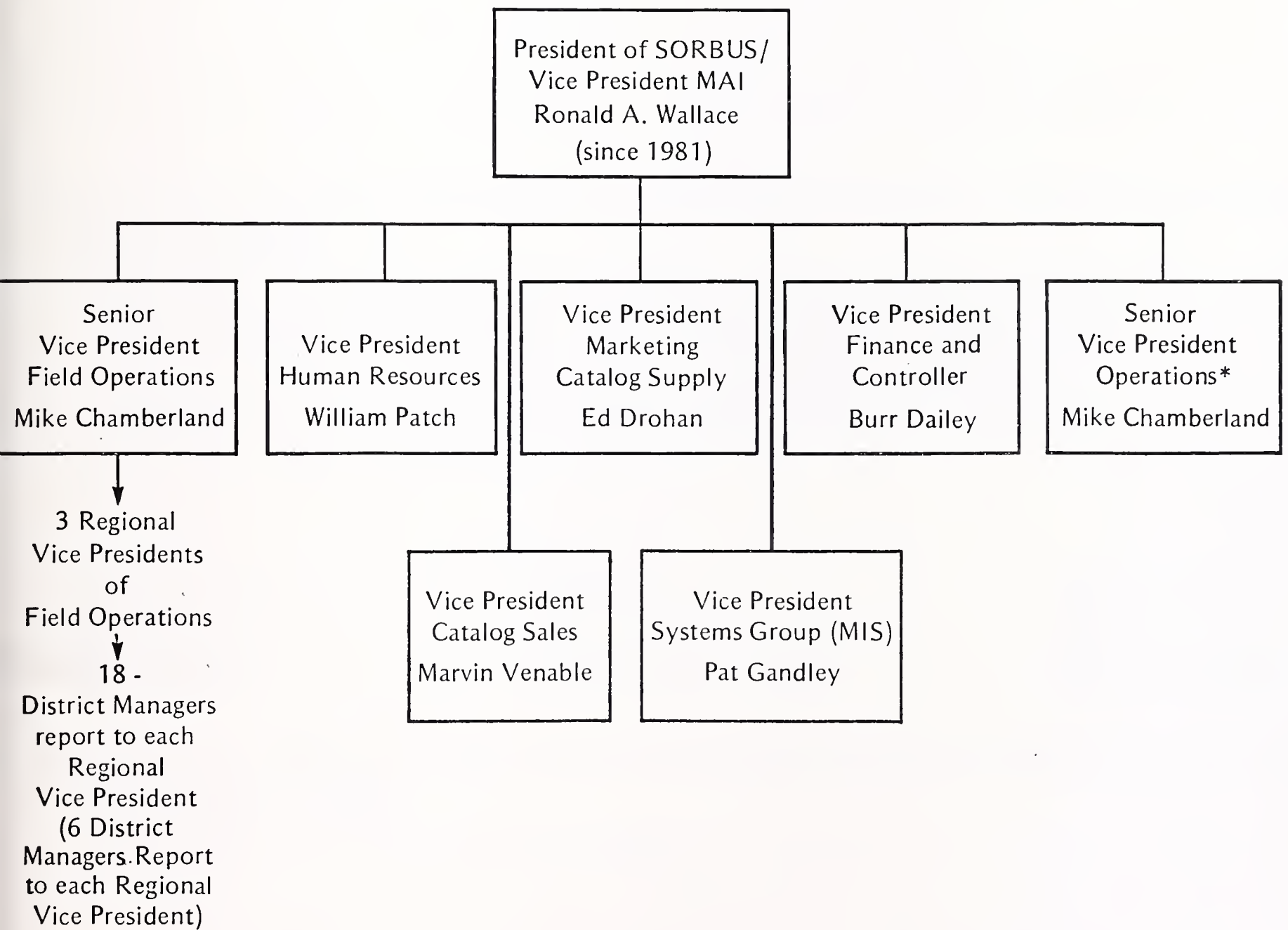
(see organizational chart, next page).

5. CS Staff Distribution

	Headcount	Direct Expense
Staff	20	23
Operations	80	77

INPUT estimate

EXHIBIT III-3

SORBUS ORGANIZATIONAL CHART

```
                    ┌─────────────────────────┐
                    │   President of SORBUS/   │
                    │    Vice President MAI    │
                    │    Ronald A. Wallace     │
                    │      (since 1981)        │
                    └─────────────────────────┘
```

Senior Vice President Field Operations — Mike Chamberland	Vice President Human Resources — William Patch	Vice President Marketing Catalog Supply — Ed Drohan	Vice President Finance and Controller — Burr Dailey	Senior Vice President Operations* — Mike Chamberland

3 Regional
Vice Presidents
of
Field Operations

18 -
District Managers
report to each
Regional
Vice President
(6 District
Managers. Report
to each Regional
Vice President)

Vice President Catalog Sales — Marvin Venable	Vice President Systems Group (MIS) — Pat Gandley

*Note: There is also a Senior Vice President of Basic Four Relations who handles all contacts with Basic Four.

Vendor:	TRW, SERVICES DIVISION	Date Prepared:	6/29/84

1. Services Organization

TRW's service organization has its own staff functions for all major group activities. These activities are all viewed within the framework of the division/corporate relationship (i.e. marketing, finance, and personnel/training are part of a broader picture.)

2. Staff Functions

Staff functions include marketing, finance, human relations, planning and development, and training. Data systems, as such, does not exist but is provided external to the group and billed on an as-used basis. Financial planning is really external to the group also (financial budgeting is internal); the distinction lies in five year goals (set outside) versus yearly budgets done internally.

☐ Data Systems   ☒ Financial Planning   ☒ Logistics

☒ Personnel   ☒ Strategic Planning   ☒ Marketing

3. Other Non-CS Staff

None other than those already mentioned.

4. Geographic Deployment

- Field operations are divided into four regions and 48 districts. There are more than 150 locations where service is available in addition to these.

- Geographic coverage is nationwide, based on:

    - a western region (San Leandro, CA)

    - an eastern region (Mahwah, NJ)

    - a southern region (Norcross, GA)

    - a central region (Oak Brook, IL)

- The handbook of customer services locations is available to anyone requesting it, if precise, detailed locations of brick and mortar office locations (a sample is attached).
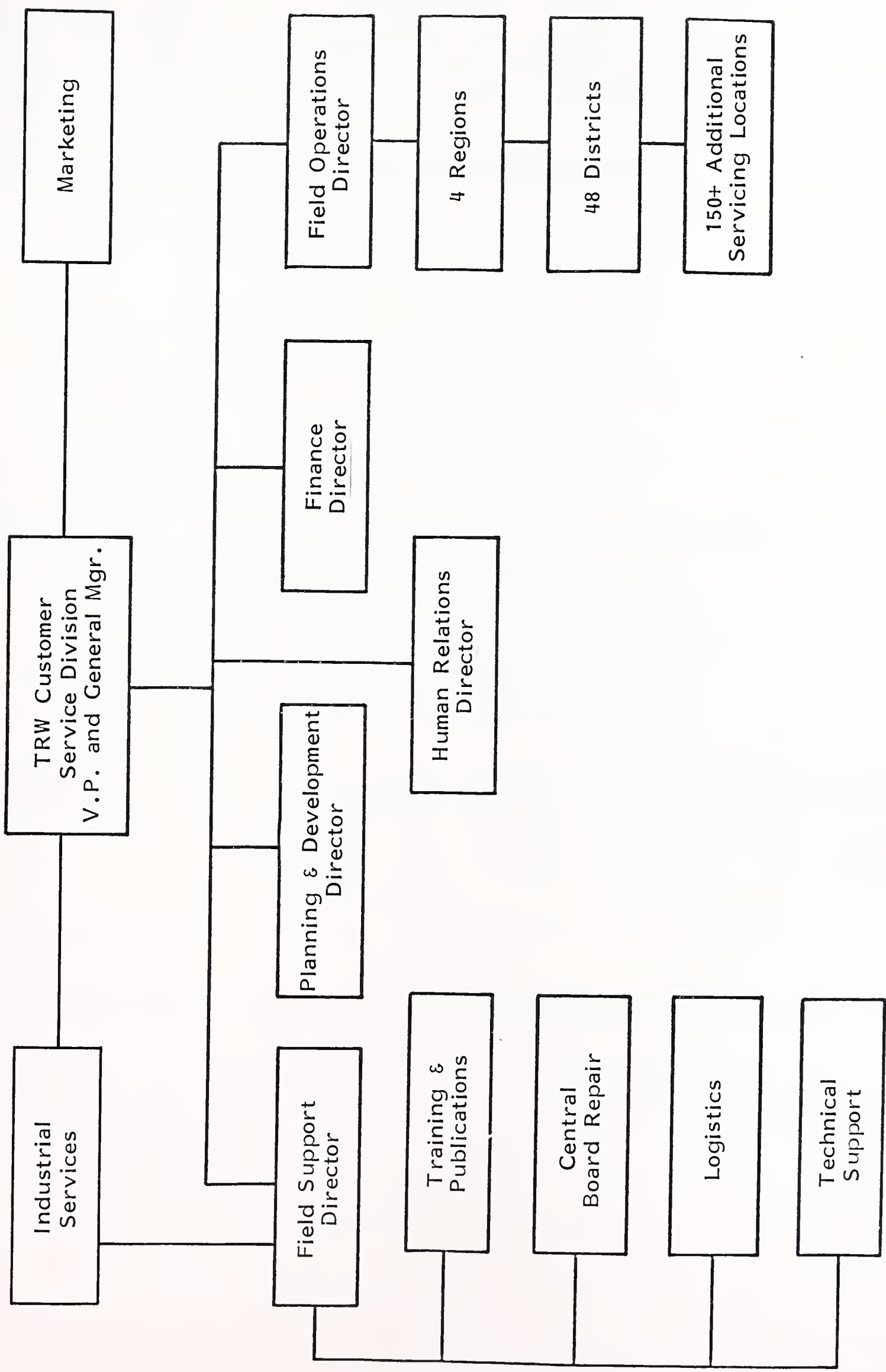
- The organization chart is also attached.

5. CS Staff Distribution

	Headcount	Direct Expense
Internal Staff	27	22
Operations	73	78

3,000 people in division

- 2,200 engineers
- 800 staff

EXHIBIT VII-1

TRW CUSTOMER SERVICES DIVISION ORGANIZATION

INPUT
ZAT2

Vendor: WANG	Date Prepared: 6/28/84

1. Services Organization

- For Wang "staff" means administration, planning and management. All other functions are classed as "operations", even down to product design, design planning, etc.

- All field operations, <u>including operations management</u>, is termed "operations."

2. Staff Functions

Explained by above. Essentially anything that supports the in-field operations.

[X] Data Systems   [X] Financial Planning   [X] Logistics

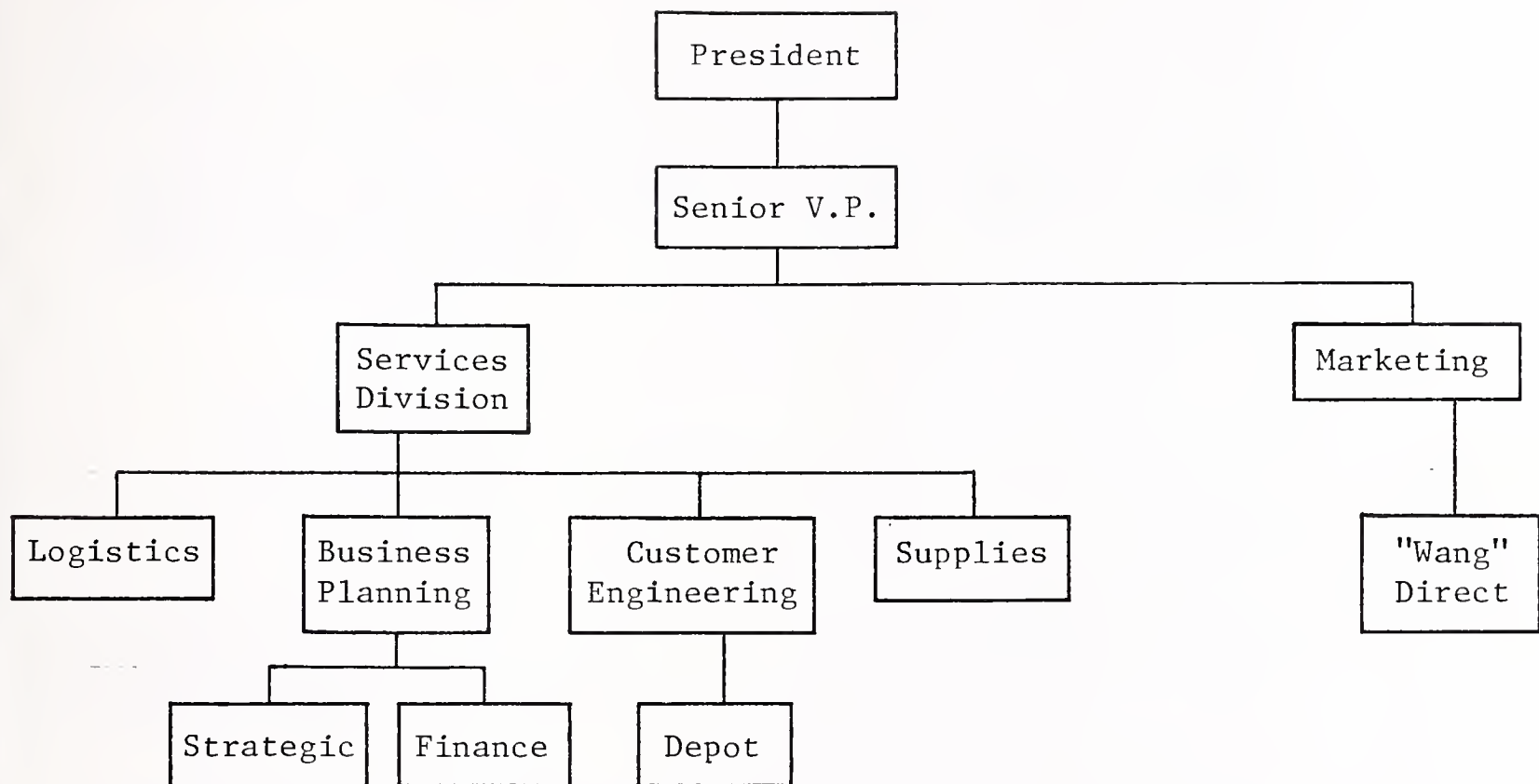[X] Personnel - (Part)   [X] Strategic Planning   [X] Marketing - (Part)

3. Other Non-CS Staff

- Part of personnel functions are accomplished outside of customer services (corporate policy decisions for example).

- Pricing is external to CSD; there is a corporate pricing group.

4. Geographic Deployment

National coverage

```
                          ┌──────────────┐
                          │  President   │
                          └──────┬───────┘
                                 │
                          ┌──────┴───────┐
                          │ Senior V.P.  │
                          └──────┬───────┘
             ┌───────────────────┴──────────────────────────────┐
       ┌─────┴──────┐                                      ┌──────┴──────┐
       │  Services  │                                      │  Marketing  │
       │  Division  │                                      └──────┬──────┘
       └─────┬──────┘                                             │
   ┌─────┬───┴────────┬──────────────┐                    ┌───────┴──────┐
┌──┴───┐ ┌┴────────┐ ┌┴───────────┐ ┌┴────────┐           │   "Wang"     │
│Logis-│ │Business │ │ Customer   │ │Supplies │           │   Direct     │
│tics  │ │Planning │ │Engineering │ └─────────┘           └──────────────┘
└──────┘ └────┬────┘ └─────┬──────┘
        ┌─────┴─────┐      │
   ┌────┴────┐ ┌────┴───┐ ┌┴──────┐
   │Strategic│ │Finance │ │ Depot │
   └─────────┘ └────────┘ └───────┘
```

5. CS Staff Distribution

	Headcount	Direct Expense
Staff	30	25
Operations	70	75

This is approximate.
Wang could not give
actual percentages.

Vendor: XEROX CORPORATION	Date Prepared: 7/13/84

1. Services Organization

Staff includes support personnel only.

Operations includes Field Engineers, direct support in field (including technical support personnel), field service and district managers, and administrative personnel.

2. Staff Functions

The Customer Services department controls most administrative operations including all planning, logistics, and data base systems. Eventually, the service organization will also take over marketing, but currently this is a corporate function.

[X] Data Systems   [X] Financial Planning   [X] Logistics

[ ] Personnel   [X] Strategic Planning   [ ] Marketing -
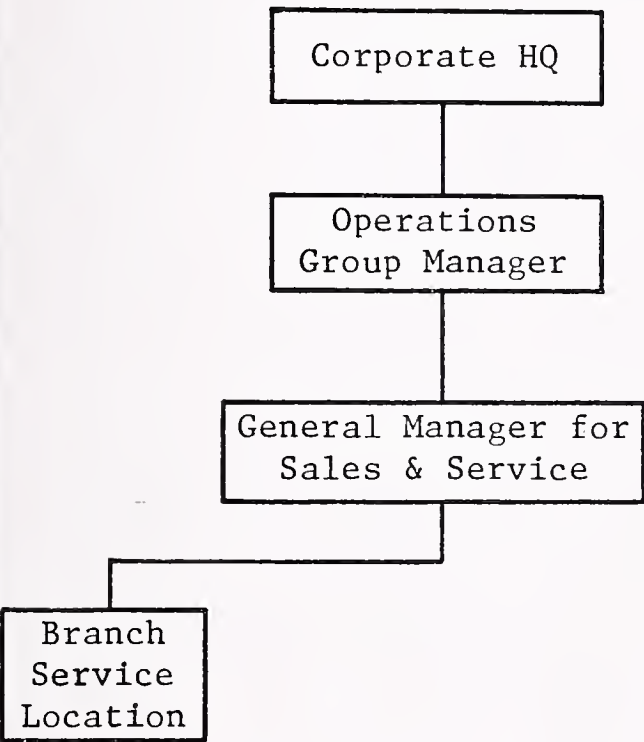   some

3. Other Non-CS Staff

Marketing and personnel are the only two major areas that are corporate rather than Customer Services department controlled.
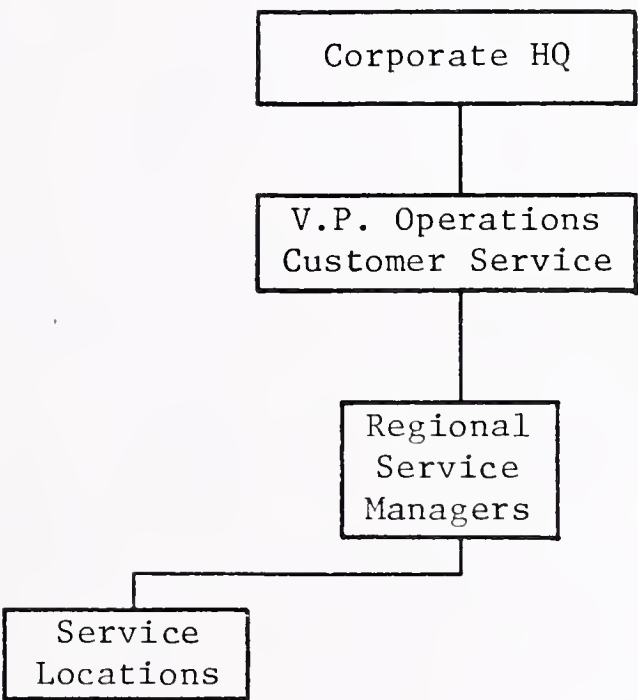
4. Geographic Deployment

Xerox Customer Service is now in transition out of Sales department control.

CURRENT, BUT CHANGING   FUTURE

```
        Corporate HQ                              Corporate HQ
             |                                         |
        Operations                              V.P. Operations
      Group Manager                            Customer Service
             |                                         |
   General Manager for                            Regional
     Sales & Service                              Service
             |                                     Managers
      Branch                                          |
      Service                                     Service
      Location                                   Locations
```

5. CS Staff Distribution

	Headcount	Direct Expense
Staff	15	18
Operations	85	82

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姓名：_____
Name

职务：_____
Post

单位：_____
Unit

No: Date:

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